Attachment 1

Proposed Amendments to McGuire Units 1 and 2
Technical Specifications Concerning Diesel Fuel Oil
Surveillance Requirements

SURVEILLANCE REQUIREMENTS (Continued)

2) Verifying the fuel level in the fuel storage tank,

3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,

4) Verifying the diesel starts from ambient condition and accelerates to at least 488 rpm in less than or equal to 11 seconds. The generator voltage and frequency shall be at least 4160 volts and 57 Hz within 11 seconds after the start signal. The diesel generator shall be started for this test by using one of the following signals:

   a) Manual, or

   b) Simulated loss-of-offsite power by itself, or

   c) Simulated loss-of-offsite power in conjunction with an ESF Actuation test signal, or

   d) An ESF Actuation test signal by itself.

5) Verifying the generator is synchronized, loaded to greater than or equal to 3000 kW in less than or equal to 60 seconds, and to 4000 kW within 10 minutes and operates for at least 60 minutes, and

6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by removing accumulated water from the day tank;

c. At least once per 92 days and from new fuel, by obtaining a sample of fuel oil in accordance with ASTM-D270-1975, and by verifying that the sample meets the following minimum requirements and is tested within the specified time limits:

   1) As soon as sample is taken or prior to adding new fuel to the storage tank verify in accordance with the tests specified in ASTM-D975-77 that the sample has:

      a) A water and sediment content of less than or equal to 0.05 volume percent,

SURVEILLANCE REQUIREMENTS (Continued)

b. By removing accumulated water:

1) From the day tank at least once per 31 days and after each occasion when the diesel is operated for greater than 1 hour, and

2) From the storage tank at least once per 31 days.

c. By sampling new fuel oil in accordance with ASTM D4057-81 prior to addition to the storage tanks and:

1) By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:

a) An API Gravity of within 0.3 degrees at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.

b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification,

c) A flash point equal to or greater than 125°F, and

d) A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82.

2) By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis

SURVEILLANCE REQUIREMENTS (Continued)

for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.

d. At least once every 31 days by obtaining a sample of fuel oil from the storage tanks in accordance with ASTM D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A.

SURVEILLANCE REQUIREMENTS (Continued)

b) A kinematic viscosity @ 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, and

c) A specific gravity as specified by the manufacturer @ 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity @ 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.

2) Within 7 days after obtaining the sample, verify an impurity level of less than 2 mg of insolubles per 100 ml when tested in accordance with ASTM-D2274-70; and

3) Within 14 days of obtaining the sample verify that the other properties specified in Table 1 of ASTM-D975-77 and Regulatory Guide 1.137, Revision 1, October 1979, Position 2.a., are met when tested in accordance with ASTM-D975-77.

e. At least once per 18 months, during shutdown, by:

1) Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service;

2) Verifying the generator capability to reject a load of greater than or equal to 576 kW while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz;

3) Verifying the generator capability to reject a load of 4000 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection;

4) Simulating a loss-of-offsite power by itself, and:

a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and

b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected blackout loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the blackout loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test.

SURVEILLANCE REQUIREMENTS (Continued)

9) Verifying that the auto-connected loads to each diesel generator do not exceed the 2-hour rating of 4400 kW;

10) Verifying the diesel generator's capability to:

a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

b) Transfer its loads to the offsite power source, and

c) Be restored to its standby status.

11) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;

12) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;

13) Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block are within the tolerances shown in Table 4.8-2;

14) Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

a) Turning gear engaged, and

b) Emergency stop.

15) Verifying that with all diesel generator air start receivers pressurized to less than or equal to 220 psig and the compressors secured, the diesel generator starts at least 2 times from ambient conditions and accelerates to at least 488 rpm in less than or equal to 11 seconds.

f. * At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 488 rpm in less than or equal to 11 seconds; and

g. * At least once per 10 years by:

Attachment 2

Justification and Safety Analysis

The proposed amendments would change the surveillance requirements for diesel fuel in the McGuire Units 1 and 2 Technical Specifications. In general, the proposed changes involve replacing fuel oil tests currently required by the Technical Specifications with different tests which are: (1) more effective in detecting unsatisfactory fuel oil and (2) simpler and less expensive to perform. The proposed changes are based upon a program of surveillance requirements developed by Kurt H. Strauss, a petroleum fuels consultant. Attachment 4 contains a report by Mr. Strauss which describes and justifies the proposed surveillance requirements. Attachment 5 describes Mr. Strauss' qualifications.

The basic intent of the proposed surveillance requirements is discussed below:

(a) Receipts of new fuel should be tested prior to addition to the storage tanks to detect contamination with other fuels which could occur after leaving the refinery. Fuel leaving the refinery is generally good quality and must meet ASTM standards; however, as a double-check, the proposed Technical Specifications would require verifying ASTM-D975-81 is met for new fuel. To ensure that all likely sources of contamination are detected, some different tests are proposed.

(b) Fuels in storage should be tested periodically to detect degradation. Only those parameters which can change during storage need to be tested.

(c) Periodic testing for particulates formed in storage should concentrate on the actual particulate contamination. The accelerated oxidation stability test (ASTM D 2274-70) is currently required to be performed for new fuel and every 92 days for stored fuel. This test provides a rough prediction of the tendency of the fuel to oxidize and form particulates during storage. It does not indicate actual particulate contamination. In addition, ASTM D 975-81 states "Correlations (of Method D2274 results) with fuel suitability are tenuous". Finally, the ASTM D2274-70 test involves significant cost and a significant administrative burden. The test must be performed by an outside laboratory because facilities are not available to perform the test on site and because it is considered a significant fire hazard to personnel. (The test involves bubbling pure oxygen for several hours through a filtered fuel oil sample heated to 203°F - significantly greater than the flash point.)

In lieu of the accelerated oxidation stability test, a test for actual particulate contamination, ASTM D2276-78, is proposed. This test would be performed every 31 days for fuel in storage - more frequently than the current test frequency for the accelerated oxidation stability test. Since formation of particulates during storage at ambient temperatures (Note that the McGuire tanks are underground) is a relatively slow process, the 31-day test frequency will ensure early detection of particulates. This test need not be performed on new fuel receipts because the Clear and Bright test (ASTM D4176-82) detects particulates in new fuel. The ASTM D2276-78 test is a relatively simple test which can be performed on site.

(d) Technical Specification 4.8.1.1.2.b currently requires removing accumulated water periodically from the day tanks. We propose to extend this requirement to include the storage tanks.

The following is a summary of the specific changes proposed. Justification for these changes is discussed in more detail in the attached report by Mr. Strauss:

(a) Extend T.S. 4.8.1.1.2.b to require periodic water removal from the storage tanks.

(b) Replace the Water and Sediment test (by centrifuge) with the Clear and Bright test (ASTM D4176-82).

(c) Add a flash point test for new fuel.

(d) Add an option to verify fuel gravity by testing and comparing with supplier's certification. The viscosity test would be required only if gravity was determined without comparison to a supplier's certification.

(e) Extend the time limit for obtaining ASTM D975-81 test results from 14 days to 31 days.

(f) Delete the requirement to perform ASTM D975-77 testing every 92 days for fuel in storage. This includes water and sediment, viscosity, and gravity.

(g) Substitute ASTM D2276-78 performed every 31 days to detect particulate contamination in lieu of ASTM D2274-70, accelerated oxidation stability test, performed every 92 days and on new fuel.

(h) Allow sulfur analysis (ASTM D975-81) to be performed in accordance with ASTM D1552-79 or ASTM D2622-82.

(i) Update the Technical Specifications to use current ASTM standards - specifically, ASTM D4057-81 instead of ASTM D270-1975. Also, reference the 1981 version of ASTM D975.

When considering the relative safety of these proposed fuel oil surveillance requirements, it should be noted that severe degradation of the fuel which could affect engine performance would be detectable during the periodic tests on the engine which are performed at least once per 31 days. For example, particulate contamination severe enough to plug the filters in a short time would be detected. It should also be noted that two filters in parallel are provided to allow filter replacement while the diesel engine is operating.

Duke Power believes that the proposed amendments would establish surveillance requirements which are effective in ensuring the quality of the diesel fuel while being less expensive and less burdensome.

Attachment 3

Analysis of Significant Hazards Consideration

As required by 10 CFR 50.91, this analysis is submitted concerning whether the proposed amendments involve a significant hazards consideration, as defined in 10 CFR 50.92.

The proposed amendments would replace fuel oil tests currently required by the Technical Specifications with different tests which are more effective for ensuring quality fuel oil. These changes are briefly discussed below:

(1) The proposed testing requirements would improve the capability to detect delivery of diesel fuel contaminated with gasoline or jet fuel (JP-4) by adding a test for flash point.

(2) The proposed Clear and Bright test is more sensitive for detecting water and sediment than the test which is currently required.

(3) The accelerated oxidation stability test which predicts the tendency of the fuel to form particulates during storage would be replaced by a different test performed more frequently which measures actual particulates in the fuel.

(4) Because proposed tests for incoming fuel shipments will ensure its quality, periodic testing would only be required for the parameters which can change during storage. Thus, certain test requirements would be deleted.

(5) Because of the high degree of protection obtained by the tests on incoming fuel prior to addition to the storage tanks, the proposed relaxation of the time limit for complete fuel specification testing from 14 days to 31 days is insignificant.

(6) Since comparative gravity, as proposed, can detect contamination by jet fuel (Jet A) and other types of contamination are detected by tests other than viscosity, viscosity testing is not required if gravity is determined using this method.

(7) Under the proposed amendments, analysis for sulfur using either of three generally accepted methods would be allowed.

(8) Administrative changes would be made to reference up-to-date industry standards.

(9) The requirement to periodically remove accumulated water from the day tanks would be extended to include the storage tanks.

With one exception, the changes described above involve either adding surveillance tests or replacing tests with others which are at least as effective. The exception (item 4) involves deleting tests which are not meaningful because the parameters tested do not change during storage. Thus, the net effect of the proposed changes would be to increase safety by establishing surveillance requirements which would be more effective for ensuring quality fuel oil. Therefore, operation

under the proposed amendments would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated or (2) create the possibility of a new and different kind of accident or (3) involve a significant reduction in a margin of safety.

Based upon the above analysis, Duke Power proposes that the proposed amendments do not involve a significant hazards consideration, as defined in 10 CFR 50.92.